

REMARKS/ARGUMENTS

The Claims

Claim 18-20 have been identified as allowable if rewritten in independent form.

Claims 1, 5, 7, 9, 10, 13, 18 and 20 are amended.

Claims 2, 8 and 17 have been canceled.

Claim Rejections-35 USC § 102

Claim 1 is rejected under 35 U.S.C. 102 (b) as being anticipated by Iseki (6,439,601). Applicant respectfully traverses the rejection of claim 1 under 35 U.S.C. 102 (b) as being anticipated by Iseki. The Examiner states that Iseki discloses a seat belt system comprising webbing including a solid material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal.

Iseki discloses an inflatable air belt. The Examiner states in paragraph 15 of the Office Action that “in the broadest sense of the word solid, the inflatable belts of the prior art are neither liquid nor gas and are therefore solid material in that effect the shape change when the belt is inflated.” In Meriam-Websters online dictionary (<http://www.m-w.com/dictionary/effects>), ‘effects’ is defined as “something that inevitably follows an antecedent (as a cause or agent)” and “power to bring about a result”. The element having power to bring about a result in the applicant’s claims is the ‘solid’ material discussed above. In our reading of Iseki, the material that *effects* the shape change is the *air* inflating the air belt of Iseki (emphasis added). We believe that the Examiner would agree that air is generally a gas, not a ‘solid’ (unless one chills it sufficiently close to absolute zero temperature in which case it would be a solid as the Examiner opines, however it would not effect a shape change as it could not flow as a fluid to “act as an agent” or “power” the expansion of the air belt of Iseki).

However, to eliminate this issue and to more clearly recite elements of the applicant's claimed invention, claim 1 has been amended to include the limitation of previously examined dependent claim 8. Amended claim 8 now recites, among other things:

wherein the material is a shape memory material .

Iseki does not disclose a seat belt system utilizing shape memory material "sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal" as claimed in amended claim 1. Claim 1 is therefore allowable over Iseki.

The applicant wishes to note for the Examiner that the amendment of claim 1 does not add new matter to the examination of the claims as amended claim 1 includes only the limitations present in previously examined claims 1, 2 and 8. Therefore, the applicant respectfully requests entry of amended claim 1.

In view of the above discussion and the amendment of claim 1, we kindly request the withdrawal of the rejection of claim 1 under 35 U.S.C. 102 (b) as being anticipated by Iseki (6,439,601).

Claims 1, 2 and 15 are rejected under 35 U.S.C. 102 (e) as being anticipated by Stonich et al. (6,598,899). Applicant respectfully traverses the rejection of claim 1 under 35 U.S.C. 102 (b) as being clearly anticipated by Stonich for the following reasons.

Stonich discloses an air inflatable seat belt. Stonich relies upon the application of a pressurized inflation fluid to cause the webbing to change shape. In contrast, claims 1 and 2 of the present application require a seat belt system comprising seat belt webbing that includes "a solid material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal", as discussed above. As discussed in the previous Office Action response, the activation signal in Stonich energizes MEMS devices to supply inflation fluid to the inflatable belt. Stonich does not disclose a "seat belt webbing including a *solid* material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal" as claimed in applicant's claim 1. However, to eliminate this issue, claim 1 has been amended to recite the limitations of previously examined claim 2 as well as the limitation of previously examined claim 8, specifically that the solid material is a shape memory material. As discussed above, Stonich discloses an air inflatable seat belt and not a seat belt having a shape memory material sufficiently configured to selectively effect a shape or dimensional change in response to an activation signal as recited by amended claim 1.

As discussed above, Stonich does not anticipate applicant's amended claim 1, therefore amended claim 1 is allowable over Stonich. Claim 2 has been canceled.

Similarly, claim 15 has been amended to more clearly recite novel features of the applicant's claimed invention by including the limitation of previously examined claim 8. Amended claim 15 now recites, among other things:

wherein the material is a shape memory material.

As discussed above with claim 1, Stonich discloses an air inflatable seat belt and not a seat belt having a shape memory material sufficiently configured to selectively effect a shape or dimensional change in response to an activation signal. Therefore, amended claim 15 is allowable over Stonich.

In view of the above discussion and the amendment of claims 1 and 15, we kindly request the withdrawal of the rejection of claims 1 and 15 under 35 U.S.C. 102 (b) as being anticipated by Stonich.

Claims 1-4 and 15 are rejected under 35 U.S.C. 102 (e) as being anticipated by McFalls (US 2005/00678826).

McFalls does not disclose the applicant's seat belt system comprising seat belt webbing that includes a shape memory material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal, as recited in applicant's amended claim 1.

Therefore, McFalls does not anticipate applicant's amended claim 1. The amendment of claim 1 was discussed earlier with Stonich. Claims 3 and 4, previously depended from now canceled claim 2, have been amended to depend from amended claim 1 and are therefore also not anticipated by McFalls.

As discussed earlier with Stonich, claim 15 has been amended to include the limitation recited in previously examined claim 8, specifically that the solid material is a shape memory material. McFalls does not disclose a method for controlling the size or shape of seat belt webbing wherein the method includes the step:

causing a solid material shape in the seat belt webbing to effect a dimensional or shape change in response to a change in the monitored state or condition; wherein the material is a shape memory material.

as recited in applicant's amended claim 15. Therefore, amended claim 15 is not anticipated by McFalls. Therefore, amended claim 15 is allowable over McFalls.

In view of the above discussion and the amendment of claims 1 and 15, we kindly request the withdrawal of the rejection of claims 1, 3, 4 and 15 under 35 U.S.C. 102 (e) as being anticipated by McFalls (US 2005/00678826).

Claims 1, 6, 10-12 are rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Terry et al. (3,430,979).

Applicant respectfully traverses the rejection of claims 1, 6, 10-12 under 35 U.S.C. 102 (b) as being anticipated by Terry et al. for the following reasons.

Terry et al. US 3430979

Terry discloses a vehicle seat belt having inflatable air bags disposed in the seat belt (see Terry Figures 3-5). The inflatable air bags are configured to change shape but not length when inflated. Terry's shape changing material is not a 'solid' material but is instead a 'flexible material bag such as polyethylene' (Terry column 2, lines 37-40) having a void to receive a pressurizing gas.

The Examiner states in paragraph 15 of the Office Action that "in the broadest sense of the word solid, the inflatable belts of the prior art are neither liquid nor gas and are therefore solid material in that effect the shape change when the belt is inflated." In Meriam-Websters online dictionary (<http://www.m-w.com/dictionary/effects>), 'effects' is defined as "something that inevitably follows an antecedent (as a cause or agent)" and "power to bring about a result". The element having power to bring about a result in the applicant's claims is the 'solid' material discussed above. In our reading of Terry, the material that *effects* the shape change is the *gas* inflating the air bags of Terry's seat belt. We believe that the Examiner would agree that a gas is not a 'solid' (unless one chills it sufficiently close to absolute zero temperature in which case it

would be a solid as the Examiner opines, however it would not effect a shape change as it could not flow as a fluid to “act as an agent” or “power” the expansion of the air bags of Terry).

However, to eliminate this issue:

Claim 2 has been canceled as discussed earlier.

Claim 11 was canceled in a previous amendment and is no longer present in the application.

Claim 6 indirectly depends from amended claim 1. Amended claim 1 now explicitly recites that the solid material is a shape memory material, as discussed earlier. Claim 6 is therefore allowable over Terry.

Claim 12 depends from claim 10. Claim 10 has been amended to more specifically recite how the webbing is adjustably mounted to the seatback portion of the seat. Specifically, amended claim 10 now recites verbatim the limitation of previously examined and allowable claim 20. Amended claim 10 now recites in part:

~~wherein the seat belt webbing is mounted with respect to a seatback portion of the seat so that the seat belt webbing is positionable across the occupant between the neck and the pelvis~~

wherein said wide end of said webbing is adjustably mounted to a track, said track secured to a seatback portion of said vehicle seat, said track permitting said seat belt webbing to be selectively vertically adjustable relative to said seatback;

The applicant respectfully requests the entry of amended claim 10, as the limitation added in the amendment is taken directly from previously examined and allowable claim 20 and therefore does not add new matter to the examination of the claims.

Amended claim 10 is allowable over Terry. Claim 12 depends directly from amended claim 10 and is therefore also allowable.

In view of the above discussion and the amendment of claim 10, we kindly request the withdrawal of the rejection of claims 6, 10 and 12 under 35 U.S.C. 102 (b) as being anticipated by Terry et al. (3,430,979).

Claim Rejections-35 USC § 103

Claim 5 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Namiki (6,805,380). Applicant respectfully traverses the rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Iseki in view of Namiki (6,805,380) for the following reasons.

Namiki US 6805380

Namiki discloses an air inflatable belt system having a single bag inside a webbed restraint belt with the inflating portion of the belt near the motor bike rider's head, the bag inflating to widen the belt to cushion forward movement of the head on impact. The tapered wide end of the belt of Namiki is a head cushion portion of the belt.

The Examiner relies upon Namiki for the tapered portion of the seat belt recited in claim 5. Iseki was discussed earlier. Iseki in view of Namiki does not disclose the applicant's seat belt system comprising seat belt webbing that includes a solid material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal as recited in applicant's claim 1.

However, to eliminate this issue the following steps have been taken:

As discussed earlier, claim 2 has been cancelled and the limitations of claims 2 and 8 have been added to amended claim 1. Amended claim 1 now explicitly recites that the solid material is a shape memory material. The amendment of claim 1 was discussed earlier. Claim 5 directly depends from claim 1. Therefore, claim 5 requires that the "solid" material be a "shape memory material". Namiki does not disclose or teach a shape memory material, therefore claim 5 is allowable over Namiki.

In view of the above, we kindly request the withdrawal of the rejection of claim 5 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Namiki (6,805,380).

Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681) and further in view of Flint (3,560,048). Applicant respectfully traverses the rejection of claims 7 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681) and further in view of Flint (3,560,048) for the following reasons.

Benitez, Jr. 3499681

Benitez discloses a passive seat "constraint vest", not a "seat belt having webbing including a solid material selectively configured to effect a shape or dimensional change" as recited in applicant's claim 1. The passive seat vest of Benitez has flaps fastenable around the front portion of the vest. We continue to read the Benitez reference as non-analogous art. Benitez does not disclose a shape memory material.

Flint 3560048

Flint discloses a suspension safety seat having a seat belt and shoulder straps. The Examiner relies upon the Flint reference for the disclosure of the first and second seat belt segments, buckle and tongue members. Flint does not disclose a shape memory material.

Iseki in view of Benitez, Jr. et al. (3,499,681) and further in view of Flint (3,560,048) does not disclose the applicant's seat belt system comprising seat belt webbing that includes a solid material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal as recited in applicant's amended claim 1.

However, to eliminate this issue:

Claim 7 depends from amended claim 1. As discussed earlier, amended claim 2 now includes the limitation of previously examined claim 8 which recites that the solid material is a shape memory material. Iseki in view of Benitez, Jr. et al. and further in view of Flint do not disclose a shape memory material. Therefore applicant's claim 7 is patentable over Iseki in view of Benitez, Jr. et al. (3,499,681) and further in view of Flint (3,560,048).

In view of the above, we kindly request the withdrawal of the rejection of claim 7 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681) and further in view of Flint (3,560,048).

Claim 8 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Takaara et al. (JP06025936A). Applicant respectfully traverses the rejection of claim 8 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Takaara et al. (JP06025936A) for the following reasons.

Takaara et al. (JP06025936A)

Takaara teaches a seat belt in which nickel-Ti shape memory alloy 3 (Takaara drawing 1) having superelasticity characteristics is sewn into a fabric cloth 1 using sewing yarns 2. Takaara sews nickel-Ti shape memory alloy into a seat belt to utilize only the superelastic properties of the shape memory alloy. Takaara does not teach or disclose a seat belt with a shape memory material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal.

The “Technical Problem” section of Takaara recites (in machine translation attached as EXHIBIT A):

Problem(s) to be Solved by the Invention

However, when cloth was used as an ingredient of a seat belt, the difficulty of there being little elasticity of a certain thing, and the force concentrating on some bodies to impacts, such as a collision, and being easy to leave the remains of a crack by pressure to the body had the merit which it is cheap and is easy to use. Furthermore, in case it equips, cloth loosened softly and has also produced faults, such as hanging down.

[0006] Then, the technical problem of this invention is offering the seat belt using the superelastic property of protecting the body against impacts, such as a collision, equally and moreover being easy to equip them with it, in view of the above-mentioned fault.

As Takaara states, Takaara is using shape memory material for its superelastic properties alone, overcoming the limitation of seat belts with “little elasticity” with a seat belt having “superelasticity characteristics” to minimize injuries during an impact by providing a seat belt that can stretch without snapping, reducing injuries. The Abstract of Takaara recites (in translation):

PURPOSE: To obtain a seat belt capable of uniformly protecting the human body when an impact is applied thereon, also easy to wear and fix, by sewing a specific shape memory alloy having superelasticity characteristics into a fabric cloth.

Again, Takaara does not teach or disclose a seat belt with a shape memory material sufficiently configured to selectively effect a shape or dimensional change in the webbing in response to an activation signal as required by the language of claim 8 and now incorporated into amended claim 1.

As discussed above, claim 8 has been canceled and its limitations incorporated into amended claim 1 to address issues discussed earlier. Therefore, claim 8 is no longer an issue. However, its shape memory material limitation has been added to amended claim 1 and as demonstrated above is patentable over Iseki in view of Takaara.

Claims 10, 11, 14 and 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Momose (JP03067751).

To eliminate this issue, claim 10 has been amended to more specifically recite how the webbing is adjustably mounted to the seatback portion of the seat. Specifically, amended claim 10 now recites verbatim the limitation of previously examined and allowable claim 20. Claim 10 now recites in part:

~~wherein the seat belt webbing is mounted with respect to a seatback portion of the seat so that the seat belt webbing is positionable across the occupant between the neck and the pelvis~~

wherein said wide end of said webbing is adjustably mounted to a track, said track secured to a seatback portion of said vehicle seat, said track permitting said seat belt webbing to be selectively vertically adjustable relative to said seatback;

The applicant respectfully requests the entry of amended claim 10, as the limitation added in the amendment is taken directly from previously examined and allowable claim 20 and therefore does not add new matter to the examination of the claims.

This feature of amended claim 10 is not disclosed in Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Momose (JP03067751). Therefore applicant's claim 10 is patentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint

(3,560,048) and further in view of Momose (JP03067751). Claim 11 was canceled in an earlier amendment and is no longer in the application. Claim 14 depends from amended and allowable claim 10 and therefore also allowable. Claim 17 has been canceled.

In view of the above, we kindly request the withdrawal of the rejection of claims 10 and 14 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Momose (JP03067751).

Claims 10, 11, 14 and 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Terry et al. (3,430,979). The Iseki, Flint and Benitez references were discussed earlier above, particularly in the section directly above.

The Examiner states that Terry teaches a seat belt system having a plurality of ribs wherein the distance between each of the ribs is greater at the wide end of the tapered portion (of the belt) than the narrow end of the tapered portion.

Applicant respectfully traverses the rejection of claims 10, 11, 14 and 17 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Terry et al. (3,430,979) for the following reasons.

As discussed in the section above, claim 10 has been amended to more specifically recite how the webbing is adjustably mounted to the seatback portion of the seat. Specifically, amended claim 10 now recites verbatim the limitation of previously examined and allowable claim 20. Claim 10 is therefore allowable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Terry et al. (3,430,979). Claim 11 was canceled in a previous amendment, is no longer in the application and is no longer an issue. Claim 14 depends from allowable claim 10 and is therefore also allowable. Claim 17 has been canceled.

In view of the above, we kindly request the withdrawal of the rejection of claims 10 and 14 under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Benitez, Jr. et al. (3,499,681), Flint (3,560,048) and further in view of Terry et al. (3,430,979).

Claims 9 and 16 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Iseki in view of Pelrine et al. (6,911,764). The Iseki reference was discussed earlier above.

Pelrine US 6,911,764

Pelrine teaches polymers that convert between mechanical and electrical energy and that may be used to perform work. Pelrine does not disclose a vehicle restraint device nor a seat belt. As Pelrine does not disclose nor teach the use of the polymers with a vehicle restraint belt, we see Pelrine as non-analogous art.

Of particular interest here, Pelrine column 18, lines 1-12 recite:

Advantageously, transferring elastic energy between polymers may eliminate the need for electroactive forces generated by electrodes to overcome some of the elastic resistance of one of the polymers. In one embodiment, the mechanical input energy provided to a portion of a polymer is less than the elastic energy required to deflect the first portion of the electroactive polymer for a part of the deflection. In some cases, elastic energy may be transferred between polymers without external assistance. In other cases, one or more *external mechanisms* may be used to transfer elastic energy of one polymer to another. The mechanisms may include cables, belts, pulleys, levers, etc. (emphasis added)

As is evident by reading Pelrine, and reinforced by the quoted section above, we respectfully and kindly point out to the Examiner that Pelrine does not “teach a belt made of a contractile polymer” as stated by the Examiner. A closer reading of the Pelrine reference identifies that the “belt” referred to in the Pelrine reference is an external mechanism and not a contractile polymer containing belt and assumed by the Examiner. As Pelrine states, the belt is an example of an external mechanism or device that may be used to transfer energy between electroactive polymers, other examples of external devices disclosed by Pelrine include cables, pulleys, levers etc. Importantly, Pelrine does not, in any way whatsoever, “teach a belt made of a contractile polymer” of any kind as assumed as a basis for rejection by the Examiner.

Claim 9 depends from amended claim 1. The limitations and scope of amended claim 9 are exactly the same the previously examined claim 9, therefore no new matter or issues relevant to examination of claim 9 have been introduced by this amendment to claim 9. The applicant respectfully requests the entry of amended claim 9 as its amended scope and limitations are

exactly the same as the previously examined claim 9 having only been rewritten into independent form.

Based on the above discussion regarding Pelrine, we respectfully request the reconsideration and withdrawal of the rejection of claim 9 as being unpatentable over Iseki in view of Pelrine et al. (6,911,764).

Allowable subject matter

Claims 18-20 have been identified by the Examiner as being allowable if rewritten in independent form including all limitations of the base and any intervening claims.

Claim 19 depends from claim 18. Claims 18 and 20 have been rewritten into independent form as suggested by the Examiner. Claims 18-20 are therefore in condition for allowance.

CONCLUSION

In view of the presented arguments, amendments and discussion, we request the withdrawal of the rejections under 35 U.S.C. 102(b), 35 U.S.C. 102(e) and 35 U.S.C. 103 (a) and the allowance of claims 1, 3-7, 9, 10, 12-16 and 18-20. All claims are now believed to be in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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